

Title (en)
REFRIGERATING APPARATUS

Title (de)
KÜHLVORRICHTUNG

Title (fr)
APPAREIL FRIGORIFIQUE

Publication
EP 1860389 A1 20071128 (EN)

Application
EP 06715161 A 20060303

Priority
• JP 2006304078 W 20060303
• JP 2005073671 A 20050315

Abstract (en)
A first and a second expansion and compression machine (30, 40) having different volume ratios (V_c / V_e) are connected in parallel to a refrigerant circuit (10) of a refrigeration apparatus. Expanders (31, 41) of the expansion and compression machines (30, 40) are connected in parallel. Compressors (32, 42) of the expansion and compression machines (30, 40) are also connected in parallel. Upon variation in the operating condition of the refrigeration apparatus, the ratio of rotation speed between the expansion and compression machines (30, 40) is controlled by a controller (60). This, as a result, allows the refrigeration apparatus to operate at a COP close to an ideal condition.

IPC 8 full level
F25B 11/02 (2006.01); **F25B 1/00** (2006.01)

CPC (source: EP US)
F25B 9/008 (2013.01 - EP US); **F25B 9/06** (2013.01 - EP US); **F25B 13/00** (2013.01 - EP US); **F25B 2309/061** (2013.01 - EP US); **F25B 2313/0272** (2013.01 - EP US); **F25B 2400/0751** (2013.01 - EP US); **F25B 2400/23** (2013.01 - EP US); **F25B 2500/18** (2013.01 - EP US); **F25B 2600/0253** (2013.01 - EP US); **Y02B 30/70** (2013.01 - EP US)

Cited by
EP2196751A4; EP2975337A4; US8590326B2; WO2009117787A3; US9746234B2; US10168078B2

Designated contracting state (EPC)
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)
EP 1860389 A1 20071128; **EP 1860389 A4 20140618**; CN 101137873 A 20080305; CN 101137873 B 20100526; JP 2006258330 A 20060928; JP 4457928 B2 20100428; US 2008163642 A1 20080710; US 7762099 B2 20100727; WO 2006098165 A1 20060921

DOCDB simple family (application)
EP 06715161 A 20060303; CN 200680007510 A 20060303; JP 2005073671 A 20050315; JP 2006304078 W 20060303; US 88623106 A 20060303